

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Confirmation No.: 8417

Philip BARROWCLOUGH

Art Unit: 2629

Application No.: 10/583,986

Examiner: Yong H. Sim

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Attorney Dkt. No.: 059864.01884

For: ANALOGUE NAVIGATION DEVICE

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

June 7, 2010

Sir:

In accordance with the Pre-Appeal Brief Conference Pilot Program guidelines set forth in the July 12, 2005 Official Gazette Notice, Applicant hereby submits this Pre-Appeal Brief Request for Review of the final rejections of claims 37-50, 52-60, 63-65 and 68-75 in the above identified application. Claims 37-50, 52-60, 63-65 and 68-76 were finally rejected in the Office Action dated February 17, 2010. Applicant filed a Response to the Final Office Action on May 3, 2010, and the Office issued an Advisory Action dated May 26, 2010 entering the claim amendments filed in the Response of May 3, 2010, withdrawing the rejection under 35 USC §112, first paragraph, but maintaining the final rejections of claims 37-50, 52-60, 63-65 and 68-76 under 35 U.S.C. §103(a). Applicant hereby appeals these rejections as being in clear error and submits this Pre-Appeal Brief Request for Review.

The final Office Action rejected claims 37-46, 48, 52-60, 63-65, and 68-76 under 35 U.S.C. §103(a) as being unpatentable over Nading (U.S. Patent No. 6,369,000) in view of Ely (U.S. Patent No. 4,480,182). The Office Action took the position that Nading discloses all of the elements of the claims, with the exception of an actuator surface that is deformable, the portion of the actuator surface has a different refractive index than the gas or fluid, and the portion of the light guide surface has a higher refractive index than the portion of the actuator surface. The Office Action then cited Ely as allegedly curing these deficiencies in Nading. Applicants,

however, submit that there is clear error with regard to the obviousness of at least one element of independent claims 37, 65, 71, and 76, as will be discussed below.

Applicant respectfully submits that the combination of Nading and Ely fails to disclose or suggest all of the features of any of the presently pending claims. For example, the combination of Nading and Ely does not disclose or suggest, at least, “wherein the portion of the light guide surface has a higher refractive index than the portion of the actuator surface,” as recited in independent claim 37 and the similar limitations recited in claim 71. Similarly, the combination of Nading and Ely fails to disclose or suggest, at least, “wherein a relative refractive index between materials on either side of the surface is changed by contacting the surface with a deformable actuator, which has a lower refractive index than the surface,” as recited in claim 65. The combination of Nading and Ely also fails to disclose or suggest, at least, “the light guide being configured to be contacted at said surface by a deformable actuator having a lower refractive index than said surface,” as recited in claim 76.

Therefore, according to embodiments of the invention, the actuator is made of a material which has an absolute refractive index lower than the refractive index of the light guide (Specification, paragraph 0038). As discussed above, the final Office Action acknowledged that Nading fails to disclose or suggest this element of the claims. In fact, the Office Action acknowledged that both Nading and Ely fail to disclose or suggest that the portion of the light guide surface has a higher refractive index than the portion of the actuator surface (Office Action, page 6). The Office Action then asserted that it would have been an obvious matter of design choice to a person of ordinary skill in the art to make the light guide in Ely more reflective than the light absorbing plastic sheet because Applicant has not disclosed that these features provide an advantage, are used for a particular purpose, or solve a stated problem (Office Action, pages 6-7). The Office Action concluded that it would have been an obvious matter of design choice to modify the combination of Nading and Ely to obtain the present invention (Office Action, page 7). Applicant respectfully asserts that the Office Action’s conclusion are clearly erroneous for at least the following reasons.

Contrary to the assertions of the Office Action, it would not have been an obvious matter of design choice to modify the combination of Nading and Ely to obtain the features “wherein the portion of the light guide surface has a higher refractive index than the portion of the actuator

surface,” as recited in independent claim 37 and the similar limitations recited in the other independent claims. Applicant respectfully asserts that one of ordinary skill in the art would clearly not be motivated to modify Ely to obtain such features. In fact, Ely appears to teach the exact opposite of the claimed limitation and, therefore, teaches away from the claimed invention.

As provided in MPEP 2145(X)(D), a prior art reference that “teaches away” from the claimed invention is a significant factor to be considered in determining obviousness. In this case, Ely describes a light absorbing plastic sheet 52 (*e.g.*, an actuator) with an index of refraction equal to or greater than that of a light conducting channel 50 (*e.g.*, a light guide) (Ely, column 4, lines 45-49). When the sheet 52 contacts the channel 50, the light 54 is coupled out of the channel 50 and up into the sheet 52 to be totally or substantially totally absorbed, thus, producing a switch device that is either on or off and provides no intermediate values of light (*see* Ely at column 4, lines 51-56).

Accordingly, Ely discloses that the light conducting channel has a refractive index that is **lower** than or equal to the light absorbing sheet (“light absorbing plastic sheet 52... with an index of refraction... equal to or greater than that of the light conducting channel 50.” Ely, column 4, lines 45-50). This is to fulfill Ely’s purpose of the light being totally absorbed producing a switch device that is either on or off. Applicants submit that this disclosure of Ely is contrary to elements of the claimed invention and clearly teaches away from the claimed invention.

More specifically, in direct contrast to Ely, embodiments of the present invention provide a light guide surface having a **higher** refractive index than a contacted portion of an actuator surface. As such, according to embodiments of the present invention, internal reflection still occurs within the light guide when the actuator surface contacts the light guide surface (*see, e.g.*, Specification at Figure 3). In addition, since the refractive index of the actuator surface is different than the refractive index of a gas or a fluid between the light guide and the actuator, the amount of light internally reflected will change in a variable manner and provide a range of values of light (*see, e.g.*, independent claim 37). This clearly contrasts with the sheet and the channel of Ely that produce only a switch device that is either on or off and provides no range of values of light (*see* Ely at column 4, lines 51-56). Accordingly, Ely clearly teaches away from the present invention, and a person of skill in the art would not be motivated to modify Ely to

obtain the features, “wherein the portion of the light guide surface has a higher refractive index than the portion of the non-reflective actuator surface,” as recited in independent claim 37 and similarly recited in the other independent claims.

Furthermore, it would not have been an obvious matter of design choice to modify the combination of Nading and Ely to obtain the features of the claimed invention because such a modification would render Ely unsatisfactory for its intended purpose. Under MPEP 2143.01(V), if proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

In this case, as discussed above, the intended purpose of Ely is to totally or substantially totally absorb light when the sheet contacts the channel, thus producing the switch device (*see* Ely at column 4, lines 51-56). This is accomplished by the actuator with an index of refraction equal to or greater than the light guide (*see* Ely at column 4, lines 45-49). However, if Ely is modified to include the actuator having a lesser refractive index than the light guide, as claimed in the present invention, then light would be totally internally reflected within the channel (*see* Ely at column 4, lines 49-51). This would render the system of Ely unsatisfactory for its intended purpose of producing the switch device. Accordingly, there is no motivation to modify Ely to obtain the features “wherein the portion of the light guide surface has a higher refractive index than the portion of the non-reflective actuator surface,” as recited in independent claim 37 and similarly recited in the other independent claims.

Furthermore, contrary to the assertions of the Office Action, Applicant has disclosed that these features provide an advantage or are used for a particular purpose. As mentioned above, the present invention includes the advantage of being able to change the amount of light internally reflected in a variable manner and to provide a range of values of light (*see, e.g.,* independent claim 37). This advantage cannot be achieved with the sheet and the channel of Ely that produce only a switch device that is either on or off and provides no range of values of light (*see* Ely at column 4, lines 51-56). Accordingly, Applicants respectfully assert that the Office Action’s conclusion that it would have been an obvious matter of design choice to modify the combination of Nading and Ely to obtain the features “wherein the portion of the light guide

surface has a higher refractive index than the portion of the non-reflective actuator surface,” is clearly erroneous.

Thus, for at least the reasons discussed above, the combination of Nading and Ely does not disclose or suggest, at least, “wherein the portion of the light guide surface has a higher refractive index than the portion of the non-reflective actuator surface,” as recited in independent claim 37 and the similar limitations recited in claim 71. Similarly, the combination of Nading and Ely fails to disclose or suggest, at least, “wherein a relative refractive index between materials on either side of the surface is changed by contacting the surface with a non-reflective deformable actuator, which has a lower refractive index than the surface,” as recited in claim 65. The combination of Nading and Ely also fails to disclose or suggest, at least, “the light guide being configured to be contacted at said surface by a deformable actuator having a lower refractive index than said surface,” as recited in claim 76. Accordingly, Applicant respectfully submits that the rejection of the independent claims is clearly in error and should be withdrawn.

The remaining dependent claims were also erroneously rejected for similar reasons to those discussed above.

Reconsideration and withdrawal of the rejections, in view of the clear errors in the Office Action, is respectfully requested. In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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Enclosures: PTO/SB/33 Form
Notice of Appeal and Petition for Extension of Time